

DYNO[®]-MILL RL RESEARCH LAB

The agitator bead mill for
innovative research and development



RELIABLE PARTNER FOR YOUR PROCESS

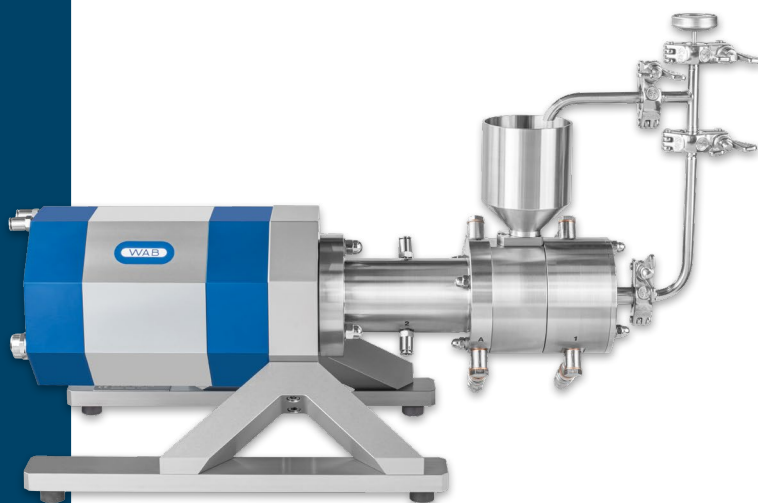
For many decades, WAB-GROUP® has been the undisputed specialist in dispersion and milling technology with its world renowned DYNO®-MILL. The highest standards for the end product demand uncompromising quality and wear resistance from the mill components. Our extensive range of mills will always provide you the right solution for your process.

After all, groundbreaking products are developed in laboratories. WAB-GROUP® has developed the DYNO®-MILL RESEARCH LAB, a compact agitator bead mill specifically designed for the demanding tasks of research and development. You can now test your innovative formulations efficiently and reproducibly with maximum ease of use. The DYNO®-MILL RESEARCH LAB enables you to:

- Grind and disperse both low- and high-viscosity suspensions with the highest level of reproducibility, down to the micron and nanometre ranges
- Process small batches of product of >100 ml in a continuous passage and circulation operation
- Ensure maximum flexibility for every process with a wide range of materials – including completely metal-free grinding
- Quickly dismantle the complete, enclosed grinding unit separately for cleaning and even autoclaving
- Obtain the best product quality with the narrowest particle size distribution in the fineness range of <100 nm, using the unique, patented grinding principle, the DYNO®-ACCELERATOR
- Carry out your experiments with the utmost ease thanks to the GMP-compliant design
- Operate the mill with ease thanks to its well-designed control system and record and monitor all relevant operating data
- Work in a pleasantly quiet laboratory environment with noise levels <65 dB(A) thanks to the water-cooled motor



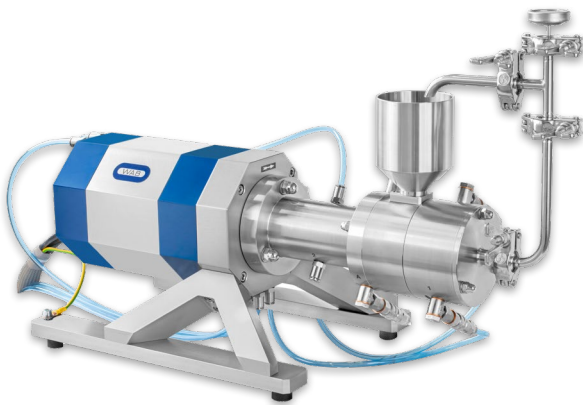
WET AND ULTRA-FINE DISPERSION AT THE NANOSCALE



PATENTED GRINDING SYSTEM – SUPERIOR GRINDING PERFORMANCE EVEN FOR THE SMALLEST BATCH SIZES

AN EFFICIENT GRINDING SYSTEM ENSURES MAXIMUM ENERGY INPUT

In the DYNO®-MILL RESEARCH LAB, the grinding beads are accelerated by the patented DYNO®-ACCELERATOR to ensure maximum energy input. The grinding beads are retained in the mill by a screen at the product outlet.

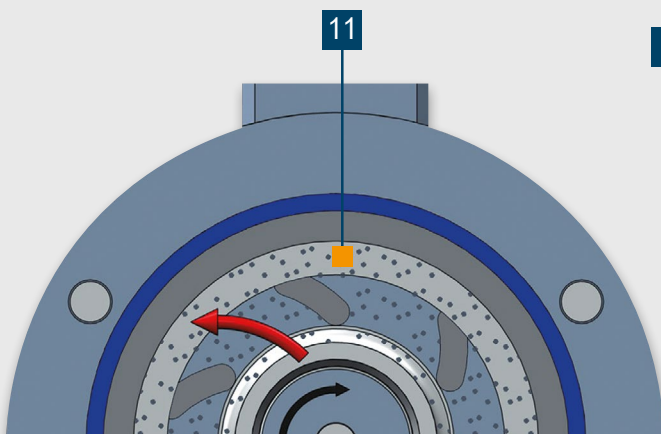
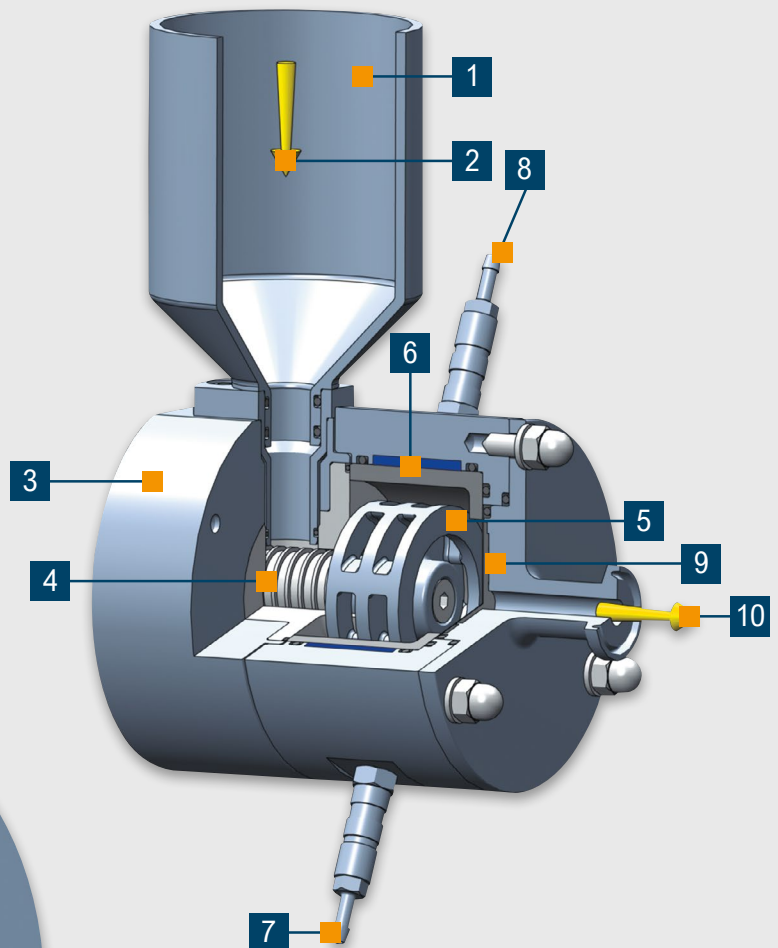


RELIABLE SHAFT SEALING THANKS TO INNOVATIVE WAB TECHNOLOGY

The shaft sealing can be supplied with either a double mechanical seal developed by WAB or a special lip seal. The compact design of these shaft sealings allows for quick and easy replacement. To operate the double mechanical seal, a buffer pressure installation comprising a stainless steel storage tank and a circulation pump for the sealing fluid is installed next to the mill.

Mode of operation

- 1 Feed funnel 250 ml, 500 ml or 1000 ml
- 2 Product inlet
- 3 Sealing housing for lip seal or double mechanical seal
- 4 Screw conveyor
- 5 DYNO®-ACCELERATOR
- 6 Coolable grinding container
- 7 Cooling water inlet
- 8 Cooling water outlet
- 9 Grinding beads separator – flat screen with slit widths for the use of grinding beads 0.05 – 1.0 mm
- 10 Product outlet
- 11 Grinding beads circulation



PRODUCT DEVELOPMENT AT ITS VERY BEST USING STATE-OF-THE-ART GRINDING TECHNOLOGY

The DYNO®-MILL RESEARCH LAB is ideal for use in research and development laboratories, as well as at university institutes. This agitator bead mill can continuously disperse and wet grind aqueous and solvent-based products in the micron to nano range. Furthermore, the laboratory mill is ideally suited to processing contamination-free materials. It offers a wide range of applications – from basic research to the development of innovative products and materials.



Industrial paint



Crop protection



Inkjet



Food & Beverage



Coatings



Pharmaceuticals



Battery materials



Ink



Cell disruption



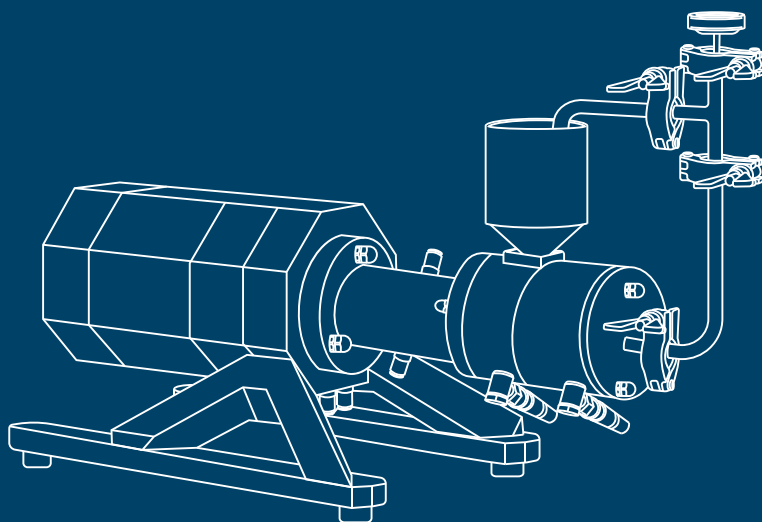
Cosmetics



Pyrotechnics



Chemicals



WELL-THOUGHT-OUT DESIGN FOR EFFICIENT WORKING

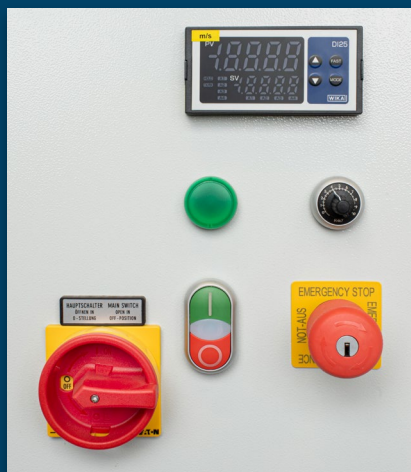
Speed and safety are essential for day-to-day laboratory work. The DYNO®-MILL RESEARCH LAB impresses with its user-friendly design:

- **Quick cleaning:** The fully enclosed grinding region can be disconnected from the drive and dismantled in just a few simple steps.
- **Autoclaving:** The entire grinding unit can be sterilised separately in an autoclave – ideal for sterile pharmaceutical applications.
- **Easy handling:** The front cover can be opened for convenient and clean filling and emptying of the grinding beads.



FULL CONTROL OVER YOUR PROCESS

Select the control system that best suits your requirements, ranging from basic solutions to intelligent process monitoring:



WAB BASIC

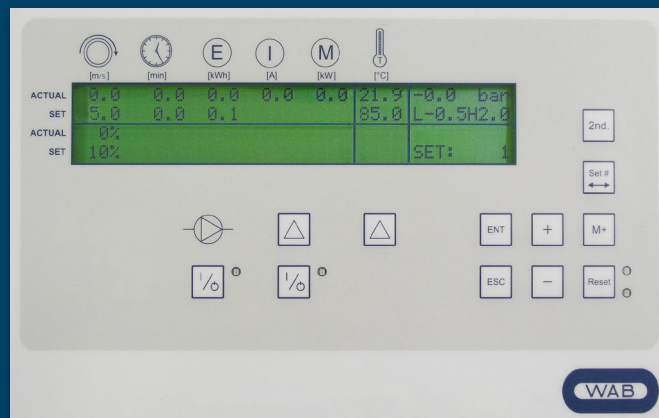
Our proven, uncomplicated solution for your process.

- Easy to control
- Cost efficient
- Straightforward, simple operation
- Frequency converter for mill motor

WAB CONTROL

The WAB CONTROL (protection class IP 65) control system combines the intuitive and user-friendly operation of your mill with comprehensive monitoring and the simple recording and logging of all critical quality parameters.

- Simple and intuitive operation
- Precise, real-time monitoring of all process parameters (speed, temperature, energy input and torque)
- Robust and durable thanks to protection class IP 65
- Seamless PC connectivity and CSV data export for fast and flexible analysis and traceability



TARGETED DEVELOPMENT TRIALS AT WAB

Do you want to test your processes using our innovative tools? Our expert team is happy to meet you at one of our Process Technology Centres located around the world to carry out your trials and develop your customised solution. We will support you throughout the entire process – from research to industrial scale-up.

- Highest flexibility to perform trials with your products
- Scale-up trials
- Modern equipment
- Process Technology Centres at seven locations worldwide
- Professional support from WAB experts

WAB-GROUP® ENTITIES

WAB-GROUP® is your reliable and global partner. With our local sites and technical specialists on site, we are happy to be at your service as a proficient mechanical engineering company and proven process expert. In our production facilities on three continents, we manufacture to the highest quality standards and assure professional and comprehensive support.

Switzerland, Headquarters:

Willy A. Bachofen AG
Junkermattstrasse 11
P.O. Box 944
4132 MuttENZ 1
Switzerland
+41 61 6867 100
wab@wab-group.com
www.wab-group.com

North America:

WAB US Corp.
3 Pearl Court, Suite E
Allendale, NJ 07401
USA
+1 973 873 9155
wab-us@wab-group.com
www.wab-group.com

France:

Willy A. Bachofen S.à.r.l.
3, rue Paul Henri Spaak
68390 Sausheim
France
+33 389 31 17 00
wab-fr@wab-group.com
www.wab-group.com

India:

WAB India Pvt. Ltd.
Plot No. D 36/3B
T.T.C. Industrial Area, Turbhe
Navi Mumbai – 400 705
India
+91 22 613 171 00
wab-in@wab-group.com
www.wab-group.com

China, Sales Office:

WAB Machinery (Changzhou) Co., Ltd.
Room 1710, Kerry Everbright City, Phase 1
No. 218 Tianmu Road West
Jing'an District, Shanghai – 200070
China
+86 21 6380 6481
wab-cn@wab-group.com
www.wab-group.com

China, Headquarters & PTC:

WAB Machinery (Changzhou) Co., Ltd.
No. 8, Qingjiang Road
Xinbei District
Changzhou City, Jiangsu Province – 213022
China
+86 21 6380 6481
wab-cn@wab-group.com
www.wab-group.com

Germany:

Willy A. Bachofen GmbH
Liebigstrasse 16
61130 Nidderau-Heldenbergen
Germany
+49 6187 9394 0
wab-de@wab-group.com
www.wab-group.com

Israel:

WAB Israel Corp Ltd
17th floor, B.S.R 2 Building
1 Ben Gurion Str., Bnei Brak 5120149
Israel
+972 3 6142303
wab-il@wab-group.com
www.wab-group.com

Contact our WAB-GROUP® locations or one of the numerous partners within our strong network.



**SCAN THE CODE
FOR MORE INFORMATION!**
www.wab-group.com



Legend

- Headquarters
- Subsidiary
- Process Technology Centre
- Agency